AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method of manufacturing a semiconductor device comprising:

forming a diffusion barrier film on a semiconductor substrate and then forming an insulating film on the diffusion barrier film, forming a concave in said insulating film by selectively removing said insulating film and said diffusion barrier film, and forming a barrier metal film over the whole surface of said insulating film including said concave, then forming a metal film filling said concave;

conducting a first polishing over a whole surface of said substrate to form a metal area filled in said concave; and

conducting a second polishing over said whole surface of said substrate to remove parts of said metal area and of said insulating film;

wherein the first polishing is stopped on said barrier metal film; and

wherein said second polishing also removes a part of a normal taper formed in an upper part of said concave.

2. (Currently Amended) A method of manufacturing a semiconductor device comprising:

forming a first interconnection of a metal film on a semiconductor substrate;

forming a diffusion barrier film on the first interconnect;

forming an insulating film on the diffusion barrier film;

forming a concave in said insulating film by selectively removing said insulating film and said diffusion barrier film to form a via hole reaching an upper surface of said first interconnection and an interconnection trench connected to said via hole;

forming a barrier metal film over the whole surface of said insulating film including said concave;

forming a metal film filling said via hole and said interconnection trench;

conducting a first polishing over a whole surface of said substrate to form a second interconnection filled in said via hole and said interconnection trench as well as a connection plug; and

conducting a second polishing over said whole surface of said substrate to remove parts of said second interconnection and of said insulating film;

wherein the first polishing is stopped on said barrier metal film; and

wherein said second polishing also removes at least a part of a normal taper formed in an upper part of said interconnection trench.

3. (Previously Presented) A method of manufacturing a semiconductor device comprising:

forming a diffusion barrier film on a semiconductor substrate and then forming an insulating film on the diffusion barrier film;

forming a sacrificial film on said insulating film;

selectively removing said sacrificial film, said insulating film and said diffusion barrier film to form a concave in said insulating film and forming a barrier metal film over the whole

surface of said insulating film including said concave, then forming a metal film filling said concave;

conducting a first polishing over a whole surface of said substrate to form a metal area filled in said concave; and

conducting a second polishing over said whole surface of said substrate to remove parts of said metal area and of said insulating film;

wherein the first polishing is stopped on said barrier metal film; and

wherein said second polishing also removes said sacrificial film.

4. (Original) The method as set forth in Claim 3, wherein said step of forming said concave in said insulating film comprises conducting etching under an etching conditions in which said sacrificial film is more slowly etched than said insulating film.

5. (Currently Amended) A method of manufacturing a semiconductor device comprising:

forming a first interconnection of a metal film on a semiconductor substrate;

forming a diffusion barrier film such that it covers said first interconnection;

forming an insulating film on said diffusion barrier film;

forming a sacrificial film on said insulating film;

forming a concave in said insulating film by selectively removing said insulating film and said sacrificial film to form a via hole reaching an upper surface of said first interconnection and an interconnection trench connected to said via hole;

forming a barrier metal film over the whole surface of said insulating film including said concave;

forming a metal film filling said via hole and said interconnection trench;

conducting a first polishing over a surface of said substrate to form a second interconnection and a connection plug filled in said via hole and said interconnection trench; and

conducting a second polishing over said whole surface of said substrate to remove parts of said second interconnection and of said insulating film;

wherein the first polishing is stopped on said barrier metal film; and

wherein said second polishing also removes said sacrificial film on said insulating film.

6. (Original) The method as set forth in Claim 5, wherein said step of forming said via hole and said interconnection trench in said insulating film comprises conducting etching under an etching conditions in which said sacrificial film is more slowly etched than said insulating film.

7. (Original) The method as set forth in Claim 1, wherein an information on a polishing rate in said second polishing is obtained and on a basis of said information, an end point of said second polishing is determined.

8. (Original) The method as set forth in Claim 2, wherein an information on a polishing rate in said second polishing is obtained and on a basis of said information, an end point of said second polishing is determined.

9. (Original) The method as set forth in Claim 3, wherein an information on a polishing rate in said second polishing is obtained and on a basis of said information, an end point of said second polishing is determined.

10. (Original) The method as set forth in Claim 4, wherein an information on a polishing rate in said second polishing is obtained and on a basis of said information, an end point of said second polishing is determined.

11. (Original) The method as set forth in Claim 5, wherein an information on a polishing rate in said second polishing is obtained and on a basis of said information, an end point of said second polishing is determined.

12. (Original) The method as set forth in Claim 6, wherein an information on a polishing rate in said second polishing is obtained and on a basis of said information, an end point of said second polishing is determined.

13. (Original) The method as set forth in Claim 1, wherein a thickness of said insulating film polished along with said metal area is observed to determine an end point of said second polishing.

14. (Original) The method as set forth in Claim 2, wherein a thickness of said insulating film polished along with said second interconnection is observed to determine an end point of said second polishing.

15. (Original) The method as set forth in Claim 3, wherein a thickness of said insulating film polished along with said metal area is observed to determine an end point of said second polishing.

16. (Original) The method as set forth in Claim 4, wherein a thickness of said insulating film polished along with said metal area is observed to determine an end point of said second polishing.

17. (Original) The method as set forth in Claim 5, wherein a thickness of said insulating film polished along with said second interconnection is observed to determine an end point of said second polishing.

18. (Original) The method as set forth in Claim 6, wherein a thickness of said insulating film polished along with said second interconnection is observed to determine an end point of said second polishing.

19. (Previously Presented) The method as set forth in Claim 1, wherein the step of conducting the first polishing comprises using a slurry containing an oxidizing agent.

20. (Previously Presented) The method as set forth in Claim 1, wherein the step of conducting the second polishing comprises using a slurry containing abrasive grains and a corrosion inhibitor.